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**EUROPEAN PATENT APPLICATION**

(21) Application number: 84401256.7

(51) Int. Cl.<sup>4</sup>: **A 63 B 71/08**  
**A 41 D 13/00**

(22) Date of filing: 18.06.84

(30) Priority: 02.09.83 CA 435976

(43) Date of publication of application:  
20.03.85 Bulletin 85/12

(84) Designated Contracting States:  
AT CH DE FR LI SE

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(54) Body protection garments.

(57) A spine protection garment for sportsmen comprising an elongated member (12) of pliable material which includes a plurality of pockets (14,18), disposed in overlapping relationship lengthwise of the garment (10). Each pocket contains a protective element which overlaps adjacent elements whereby the garment is reinforced over the whole of the length of the garment. Because the protective elements are supported independently of each other, they are moveable relative to each other both laterally and transversely. Thus the garment (10) can flex to follow the contour and spinal movement of the person wearing the garment.

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5 This invention relates to body protection equipment used by sportsmen, such as ice hockey players and footballers who are exposed to frequent body contact with opposing players.

#### DESCRIPTION OF THE PRIOR ART

10 Body protection equipment has been proposed previously which comprises a jacket or coat having frontal, side, shoulder and back portions which are reinforced and/or padded so as to protect at least a part of the rib cage and spine of the wearer.

15 Such garments are disclosed in U.S. Patents 2,108,336 (HELLAND) and 2,163,463 (KENNEDY). However, as mentioned above, the garments disclosed in these patents only provide protection for part of the spine. It is an object of the present invention to provide  
20 protective equipment which will extend over the length of a user's spine, and which is constructed so as to flex and conform to the curvature and/or disposition of the spine.

#### BRIEF DESCRIPTION OF THE DRAWINGS

25 In order that the above object will be apparent, and so that the invention can be understood and readily carried into effect, body protection equipment in accordance with the invention will now be described, by way of example only, with reference to the accompanying  
30 drawings, in which:

Figure 1 is a perspective view of the protective equipment.

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Figure 2 is a sectional view of line II-II in Figure 1, and

5           Figure 3 is a perspective view showing an alternative method of securing the equipment to the body of a wearer.

DESCRIPTION OF A PREFERRED EMBODIMENT

10           Referring to Figures 1 and 2 of the drawings, 10 indicates a protective garment which is shaped so as to extend along the length of the spine of a wearer. The garment 10 comprises an elongated rectangular member 12 of pliable material which is provided with two compartments 14 on one face 16, and a single pocket 18 on the face 20.  
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20           The two compartments 14 on the face 16 each occupy substantially one half of the length of the member 12, and extend over the full width of the member. Each compartment has a reinforcing member 22 disposed therein in addition to a sheet of padding material 24 which is interposed between the reinforcing member 22 and the outer face of the compartment 14. The compartment 18 on the face 20 of the member 12 is disposed so as to lie  
25           over approximately half the length of each of the compartments 14 on the face 16, and to extend over the full width of the member 12.

30           As with the compartment 14, the compartment 18 also has a reinforcing member 22 disposed therein together with a sheet of padding material 24, which padding material 24 is located such that it is disposed between the member 22 in the pocket 18 and the members 22 in the pockets 14.

It will be seen, therefore, that the garment is constructed such that the overlapping reinforcing members 22, form a continuous reinforcement over the whole length of the garment, but since the members are supported independently of each other, they are movable relative to each other, both laterally and transversely. Thus the garment will flex to follow the contour and movements of the spine of a user. Means are provided for securing the protective garment 10 on the body of a sportsman, the said means comprising two pairs of straps 26 and 27, the straps of each pair being secured to opposite longitudinal edges of the garment by press studs. The upper pair of straps 26 are arranged such that the free ends can extend over the shoulder of a user and then be secured to the garment 10. Means are provided for securing the free ends of the lower pair of straps 27 to each other and may comprise co-operating buckle and catch means, or alternatively, the straps may be detachably secured together by material sold under the trade name VELCRO. The straps 26 may be detachably secured to the garment 10 whereby the position of the straps can be varied according to the personal requirements of a sportsman. For example, a plurality of male portions 28 of press studs are attached to each longitudinal edge of the garment for co-operation with press-stud female portions of a press stud attached to each strap 26.

It will be appreciated that whilst two pairs of straps 26 have been described and illustrated, this number can be varied.

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Whilst in the above-described embodiment, the protection garment can be secured to the body of a sportsman by means of straps 26, it can be secured in position in any other convenient manner, for example as shown in Figure 3 of the drawings, in which the garment 10 is attached to a jacket for protecting at least part of the rib cage of a sportsman.

Referring to Figure 3 of the drawings, 30 indicates a left-hand body protective element and 32 indicates a right-hand body protective element, each element being so shaped that when it is placed on the appropriate shoulder of a wearer, the parts 30a and 32a are disposed over his chest and 30b and 32b thereof are disposed over his back.

Each element 30 and 32 includes stiffeners and/or padding, not shown, which are well known to those skilled in the art.

The elements 30 and 32 are connected together along adjacent vertical edges of the front and rear parts 30a, 32a and 30b, 32b, as shown in Figure 3 of the drawings by laces 34, whereby the garment so far described can be adjusted to the fit required by a sportsman.

A strap 36 is attached to the bottom edge of the parts 30b and 32b of the elements 30 and 32, respectively, the free ends of the straps being provided with, or

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formed into a loop 38. An elasticized strap 40 extends through and is supported by the loops 38 and has two members 42 mounted thereon so as to be slidable lengthwise of the strap 40.

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The members 42 are disposed on the strap 40 externally of the outer vertical side of the straps 36, and each includes the female portion 44 of a press stud.

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When the above-described protective garment is worn by a sportsman, the elements 30 and 32 protect the rib cage of the wearer, whilst the portion 10 protects the spine, and is retained in position relative to the elements 30 and 32 by the strap 40 when the press-stud female portions 42 are engaged with selected male portions 28, and the strap fastened around the waist of the user. The portion 10 is further retained in position when in use by its upper end which is interposed between the back of the wearer and the elements 30 and 32. The elements 30 and 32 are retained relative to the rib cage, by means of straps, not shown, connected between the chest and back portions of each element.

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It will be appreciated that whilst in the above-described embodiments the loops 38 are formed integrally with the straps 36, the loops may be provided on separate members, not shown, which are adjustable to different locations along the length of the strap.

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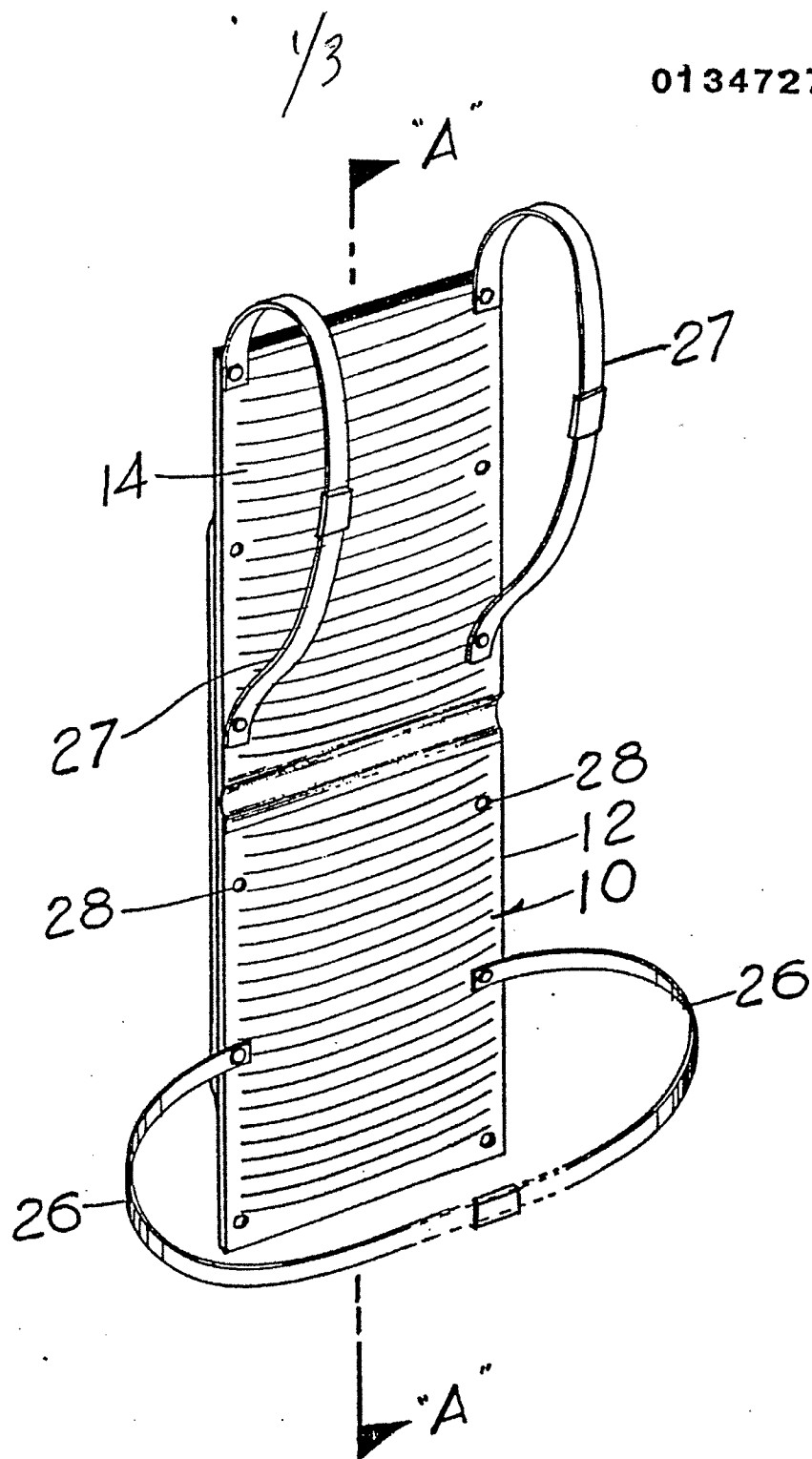
Thus, in addition to adjustment of the portion 10 provided by the press studs, an additional fine

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

- 1) A body protection garment comprising an elongated member of pliable material having a plurality of pockets, thereon or therein, said pockets being disposed in lengthwise overlapping relationship, each pocket containing a protective element which overlaps an adjacent element or elements to permit movement of the elements transversely and laterally relative to each other.
- 2) A body protection garment as claimed in claim 1, in which means are provided for detachably securing the garment to the body of a user.
- 3) A body protection garment as claimed in claim 2, in which the means for detachably securing the garment to the body of a user comprises at least one pair of straps, disposed one on each longitudinal edge, the straps including means for detachably securing them together.
- 4) A body protection garment as claimed in claim 1, claim 2 or claim 3, in which the elongated member is rectangular in shape and has at least one pocket on one side, and at least two pockets on the other side, the said one pocket overlapping the pockets on the other side.

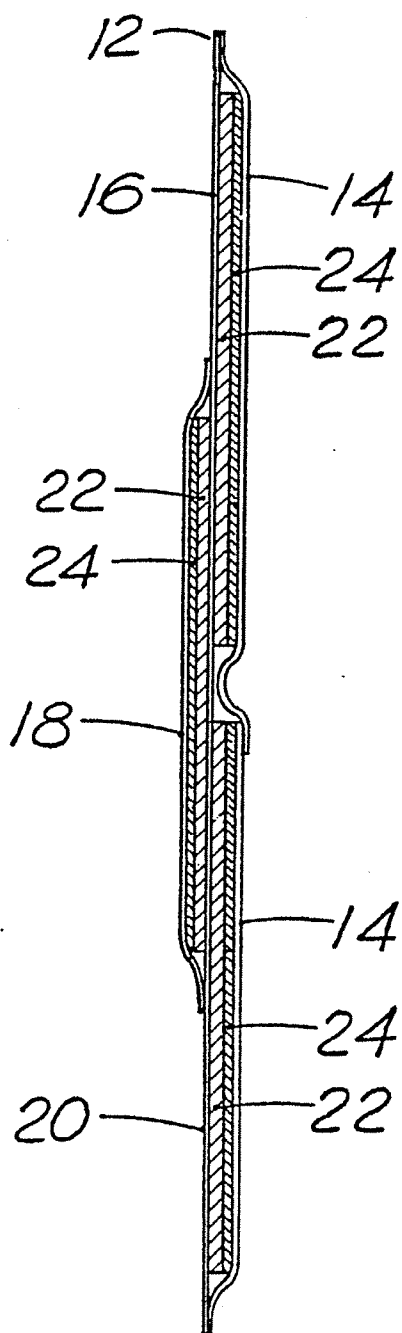
- 5) A body protection garment as claimed in claim 2, in which the straps are detachably secured to the garment, the garment including means for detachably securing the straps thereto in a plurality of locations longitudinally of the garment.
- 6) A body protection garment as claimed in claim 5, in which the means for securing the straps to the garment comprise press studs, portion of which are attached to the garment.
- 7) A body protection garment as claimed in claim 2, in which the means for securing the garment to the body of a sportsman comprises a jacket having means for detachably securing the garment to the rear portion of the jacket.
- 8) A body protection garment as claimed in claim 7, in which the means for securing the garment to the jacket comprise press studs.
- 9) A body protection garment as claimed in claim 8, in which a portion of the press studs is supported on a belt or strap attached to the rear portion of the jacket and disposed so as to extend transversely of the garment.
- 10) A body protection garment as claimed in claim 9, in which the belt or strap is supported by a loop or loops depending from the rear portion of the jacket.



**FIG. 1**

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**section 'A-A'**

**FIG. 2**





European Patent  
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# EUROPEAN SEARCH REPORT

0184727

EP 84401256.7

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
D,A	<p><u>US - A - 2 163 463 (KENNEDY)</u></p> <p>* Claims; fig. 1 *</p> <p>--</p>	1,2	<p>A 63 B 71/08</p> <p>A 41 D 13/00</p>
A	<p><u>US - A - 1 683 657 (DIETERLE)</u></p> <p>* Claims; fig. 1 *</p> <p>--</p>	1,2	
A	<p><u>US - A - 4 272 847 (BUHLER)</u></p> <p>* Abstract; fig. 1 *</p> <p>--</p>	1,2	
A	<p><u>US - A - 932 352 (SULLIVAN)</u></p> <p>* Claims; fig. 2 *</p> <p>----</p>	1,2,3	
			<p>TECHNICAL FIELDS SEARCHED (Int. Cl.4)</p> <p>A 63 B 71/00</p> <p>A 41 D 13/00</p>
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 07-11-1984	Examiner SCHÖNWÄLDER
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone</p> <p>Y : particularly relevant if combined with another document of the same category</p> <p>A : technological background</p> <p>O : non-written disclosure</p> <p>P : intermediate document</p> <p>T : theory or principle underlying the invention</p> <p>E : earlier patent document, but published on, or after the filing date</p> <p>D : document cited in the application</p> <p>L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p>			